

**REMARKS**

The above amendments and the following remarks are fully and completely responsive to the Office Action dated October 27, 2003. Claims 1-6 and 8-13 are pending in this application. In the outstanding Office Action, the Amendment filed August 5, 2003 was objected to under 35 U.S.C. § 132; claims 1-6 and 10-13 were rejected under 35 U.S.C. § 112, first paragraph; claims 1-6 and 8-13 were rejected under 35 U.S.C. § 102(e); and claims 1-6 and 8-13 were rejected under 35 U.S.C. § 103(a) (two different rejections). No new matter has been added. Claims 1-6 and 8-13 are presented for reconsideration.

**35 U.S.C. § 132, New Matter**

The Office Action objected to the Amendment filed on August 5, 2003 under 35 U.S.C. § 132 because the Office Action alleged that this Amendment introduced new matter into the disclosure. Specifically, the Office Action asserts that the features of “each area including a plurality of continuous shading parts” that was added to claim 1, the “width of the aperture maintained at a uniform width” that was added to claim 8, and “the optional area replacing the continuous shading part with a liquid crystal shutter” that was added to claim 13, were not supported by the original disclosure.

Regarding claim 1, the Specification at page 14, beginning at line 19 states:

Fig. 9 illustrates the viewer 2 watching a stereoscopic display device 1 without glasses. Sensors 101 for detecting a head position of the viewer 2 are mounted on upper ends of the stereoscopic display device 1 without glasses. Figs. 10, 11 illustrate a display 1a with shading means divided into three areas of H1, H2, and H3 when the sensors 101 detect the head of the viewer 2 shifts.

The Specification at page 16, beginning at line 9 states:

The stereoscopic display device 1, as shown in Fig. 12, comprises a liquid crystal panel 20, a shading barrier 10 arranged on a viewer side of the liquid crystal panel 20, and a flat light source 30.

The example in Figure 12 illustrates eight continuous shading parts 10b. One of ordinary skill in the art would understand that an actual display could contain more than eight continuous shading parts 10b, because the specification at page 17, beginning at line 17 states:

For example, in order to realize the function, the transparent electrode for turning the barrier on and off is subdivided to make the shifting of the shading part possible. The barrier is turned on so that one aperture corresponds to two pixels displayed on the liquid crystal display panel 20.

A person of ordinary skill would also recognize that if the display 1 shown in Fig. 12 were divided into areas in the horizontal direction, for example, three areas as shown in Figs. 10-11 and 21-24, two areas as shown in Figs. 15-20, 25, and 27, or four areas as illustrated in Fig. 26, then there would be at least two continuous shading parts 10b (i.e. a plurality) for each area. Accordingly, the amendment to claim 1 to include "each area including a plurality of continuous shading parts" does not introduce new matter. Therefore, Applicants request reconsideration and withdrawal of the objection of claim 1 under 35 U.S.C. § 132.

Regarding claim 8, the Specification at page 50, beginning at line 15 states:

As shown in Fig. 34, when forming the transparent electrodes, the transparent electrode for indicating before and after the shifting of the shading part 150 may be formed so as to belong to adjacent separate groups so that a width of the aperture on the boundary part of each of the areas does not change.

Explanation is made on this embodiment by referring to Figs. 35, 36. In Figs. 35, 36, left and right side apertures are separately controlled, leaving the shading part 150B as a boundary. Therefore widths of the apertures 151, 152 do not change.

As illustrated above, the specification and Figs. 35-36 clearly disclose that “the aperture widths are maintained at a uniform width by setting a boundary edge of divided areas of the shading means at one of the continuous shading parts.” Accordingly, the amendment of claim 8 to include this feature does not introduce new matter. Therefore, Applicants request reconsideration and withdrawal of the objection of claim 8 under 35 U.S.C. § 132.

Regarding amended claim 13, the Specification at page 17, beginning at line 11 states:

The shading barrier 10 composed of the TN-type liquid crystal display panel is so constructed that a transparent electrode of ITO or the like is patterned on the inner surfaces of the glass substrates 11 and 12, and the shading part of the barrier can be electrically turned on and off. Further, the shading barrier 10 has a function of shifting the shading part by 1/4 of its pitch. For example, in order to realize the function, the transparent electrode for turning the barrier on and off is subdivided to make the shifting of the shading part possible.

As illustrated above, the specification clearly discloses that “the continuous shading part ... is formed with a liquid crystal shutter.” Accordingly, claim 13 as amended does not introduce new matter. Therefore, Applicants request reconsideration and withdrawal of the objection of claim 13 under 35 U.S.C. § 132.

As discussed above claims 1 and 8 as previously presented and claim 13 as currently amended do not contain new matter. Therefore, Applicants request reconsideration and withdrawal of the objection of claims 1, 8 and 13 under 35 U.S.C. § 132.

**35 U.S.C. § 112, First Paragraph**

Claims 1-6 and 10-13 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. As discussed in detail above, the subject matter of these claims is described in the specification in a manner that reasonably conveys to one skilled in the art that the inventors, at the time the application was filed, had possession of the claimed invention. Therefore, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1-6 and 10-13 under 35 U.S.C. § 112, first paragraph.

Claim 13 was rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 13 has been amended such that this claim is fully enabled by the specification. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 13 under 35 U.S.C. § 112, first paragraph.

**35 U.S.C. § 102(e)**

Claims 1-6 and 8-13 were rejected under 35 U.S.C. § 102(e) as being anticipated by Hamagishi (U.S. Patent No. 6,049,424). In making this rejection, the Office Action asserts that this reference teaches each and every element of the claimed invention. Applicants respectfully request reconsideration of this rejection.

Claim 1 recites in part:

a shading means comprising a plurality of continuous shading parts and liquid crystal shutters provided on both sides of the continuous shading part, the liquid crystal shutters turning on and off based upon the position of the head of the viewer to generate a binocular parallax effect; ..., and

area shifting and division control means for dividing the shading means into areas in a horizontal direction and controlling shifting of said liquid crystal shutters in each of the areas, each area including a plurality of continuous shading parts.

Hamagishi teaches a three dimensional display device. This reference clearly teaches at column 8, beginning at line 32:

The 3D display device comprises a sensor (not shown) for sensing the position of the head of the viewer 2 and barrier movement means for laterally moving the shading barrier 10 from the initial position when the sensor senses that the head of the viewer 2 is in a position where normal 3D images cannot be viewed, that is, a moire position in a case where the shading barrier 10 is fixed.

The barrier movement means may comprise a machine mechanism for mechanically moving the shading barrier 10. In the present invention, however, barrier movement means comprising liquid crystal shutters 31 and 32 arranged in both ends in the lateral direction of the slit 11 of the shading barrier 10 fixedly located, as shown in FIGS. 5 and 6, and a control circuit unit for selectively turning the liquid crystal shutters 31 and 32 on and off upon input of an output of the above-mentioned sensor which is not illustrated is used in order to make the delay of control as little as possible.

Accordingly, this portion of Hamagishi may teach the claim element:

a shading means comprising a plurality of continuous shading parts and liquid crystal shutters provided on both sides of the continuous shading part, the liquid crystal shutters turning on and off based upon the position of the head of the viewer to generate a binocular parallax effect;

Hamagishi, however, fails to teach and/or suggest an:

area shifting and division control means for dividing the shading means into areas in a horizontal direction and controlling shifting of said liquid crystal shutters in each of the areas, each area including a plurality of continuous shading parts.

Accordingly, Applicants respectfully request reconsideration of this rejection.

As illustrated in Figure 21 and elsewhere in Hamagishi, this reference teaches shifting the liquid crystal shutters across the entire display. Hamagishi, however, fails to disclose the function of dividing the shading means into areas in a horizontal direction. For example, Figures 10 and 11 of the present specification illustrate dividing the display into three regions. Figures 16-20 illustrate division into two areas. In contrast, Hamagishi only teaches shifting the liquid crystal shutters in a consistent manner across the entire shading device.

The present specification describes, and the present claims recite, the function of dividing the shading means into areas in a horizontal direction and controlling shifting of the liquid crystal shutters in each of the areas.

Therefore, Hamagishi fails to teach and/or suggest the claimed invention. Specifically, this reference fails to teach the function of “dividing the shading means into areas in a horizontal direction and controlling shifting of the liquid crystal shutters in each of the areas.” Consequently, Hamagishi fails to teach and/or suggest an area shifting and division control means for dividing the shading means into areas in a horizontal direction and controlling shifting of the liquid crystal shutters in each of the areas.

### **35 U.S.C. § 103(a)**

Claims 1, 3, 5, 6, 8-9 and 11-13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Isono (U.S. Patent No. 5,315,377) in combination with Chikazawa (U.S. Patent No. 5,900,972). In making this rejection, the Office Action asserts that the combination of these two references teaches and/or suggests the claimed invention.

The Office Action also asserts that the combination of these two references would be obvious to one of ordinary skill in the art.

Isono, similar to Hamagishi, teaches that in response to the barrier movement command, the controller 22 drives the drivers 24 and 26 in such a manner that the parallax barrier displayed on the panel 28 is shifted to the right or left by a distance corresponding to one pixel in a real-time manner (column 7, lines 12-17; column 11, lines 49-54).

Accordingly, this portion of Isono may teach the claim element:

a shading means comprising a plurality of continuous shading parts and liquid crystal shutters provided on both sides of the continuous shading part, the liquid crystal shutters turning on and off based upon the position of the head of the viewer to generate a binocular parallax effect;

This reference, however, fails to teach and/or suggest dividing panel 28 into two or more areas and controlling the shifting of the liquid crystal shutters in each of separate areas of barrier 28. Therefore, Isono fails to teach and/or suggest an:

area shifting and division control means for dividing the shading means into areas in a horizontal direction and controlling shifting of said liquid crystal shutters in each of the areas, each area including a plurality of continuous shading parts.

Accordingly, Applicants respectfully request reconsideration of this rejection.

Thus, Isono fails to teach and/or suggest the claimed invention. Specifically, this reference fails to teach and/or suggest an area shifting and division control means for dividing the shading means into areas in a horizontal direction and controlling shifting of the liquid crystal shutters in each of the areas.

The Office Action admits that Isono does not teach explicitly that the parallax barrier may be comprised of liquid crystal shutters at two sides of a continuous shading part. The Office Action cites Chikazawa as teaching strips of liquid crystal shutters (39

and 40, Figure 13) to correct this deficiency in Isono. The Office Action also asserts that it would have been obvious to one of ordinary skill in the art to have a continuous shading part of the barrier. The Office Action asserts that such a modification would be obvious since one could make one part of the panel or one set of shutters to be always at a nontransparent or off state.

While Chikazawa may correct part of the deficiency noted by the Office Action in Isono, this reference is not cited for, nor does it teach, the function of dividing the shading means into areas in a horizontal direction and controlling shifting of the liquid crystal shutters in each of the areas.

It appears that the Office Action is taking official notice that it would be obvious to one of ordinary skill in the art to make one part of the panel to be at an always nontransparent or off state. Applicants do not believe that it would be obvious to one of ordinary skill to make one part of the panel to be at an always nontransparent or off state. Consequently, Applicants respectfully request that at least one reference be provided showing that such a modification would be considered obvious to one of ordinary skill in the art.

The combination of Isono and Chikazawa fails to teach and/or suggest each element of the claimed invention. Specifically, the combination of these two references fails to teach the function of "dividing the shading means into areas in a horizontal direction and controlling shifting of the liquid crystal shutters in each of the areas." Consequently, these references fail to teach and/or suggest an area shifting and division control means for dividing the shading means into areas in a horizontal direction and controlling shifting of the liquid crystal shutters in each of the areas. Accordingly,



Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1, 3, 5, 6, 8-9 and 11-13 under 35 U.S.C. § 103(a).

Claims 2, 4, and 10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Isono and Chikazawa (discussed above) and further in view of Taniguchi (U.S. Patent No. 6,094,216). In making this rejection, the Office Action asserts that the combination of these three references teaches each and every element of the claimed invention and that it would be obvious to one of ordinary skill in the art to combine these three references.

While Taniguchi may correct the deficiencies noted by the Examiner in the combination of Isono and Chikazawa, this reference is neither cited for, nor does it teach and/or suggest, an area shifting and division control means for dividing the shading means into areas in a horizontal direction and controlling shifting of the liquid crystal shutters in each of the areas.

Accordingly, the combination of these three references fails to teach each and every element of the claimed invention. Specifically, the combination of these three references fails to teach and/or suggest an area shifting and division control means for dividing the shading means into areas in a horizontal direction and controlling shifting of the liquid crystal shutters in each of the areas. Therefore, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 2, 4 and 10 under 35 U.S.C. § 103(a).

## **Conclusion**

Applicants' amendments and remarks have overcome the objections and rejections set forth in the Office Action dated October 27, 2003. Specifically, Applicants'

amendments and remarks have overcome the objection under 35 U.S.C. § 132 and the rejection of claims 1-6 and 10-13 under 35 U.S.C. § 112, first paragraph. Applicants' remarks have distinguished the claimed invention from Hamagishi and thus overcome the rejection of claims 1-6 and 8-13 under 35 U.S.C. § 102(e). Applicants' remarks have also distinguished claims 1, 3, 5, 6, 8-9 and 11-13 from the combination of Isono and Chikazawa and thus overcome the rejection of these claims under 35 U.S.C. § 103(a). Applicants' remarks have also distinguished claims 2, 4 and 10 from the combination of Isono, Chikazawa and Taniguchi and thus overcome the rejection of these claims under 35 U.S.C. § 103(a). Accordingly, claims 1-6 and 8-13 are in condition for allowance. Therefore, Applicants respectfully request consideration and allowance of claims 1-6 and 8-13.

Applicants submit that the application is now in condition for allowance. If the Examiner believes the application is not in condition for allowance, Applicants respectfully request that the Examiner contact the undersigned attorney by telephone if it is believed that such contact will expedite the prosecution of the application.

In the event that this paper is not considered to be timely filed, Applicants hereby petition for an appropriate extension of time. The Commissioner is authorized to charge payment for any additional fees which may be required with respect to this paper to our Deposit Account No. 01-2300, **making reference to attorney docket number 107336-00008.**

Respectfully submitted,



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